

## PATENT SPECIFICATION



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429,044

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## PROVISIONAL SPECIFICATION

## Improvements in and relating to Electromagnetic Therapeutic Apparatus

I, SUZANNE SARA STOKVIS SIMPSON, of 5, Randolph Road, Maida Vale, London, W. 9, a British subject, do hereby declare the nature of this invention to be as follows:—

This invention relates to electro magnetic therapeutic apparatus of the kind comprising pairs of electro magnets or generators of magnetic waves arranged in spaced relationship so that magnetic fields that can be directed through the body of the patient may be set up between the adjacent poles of the pairs of magnets, and has for its object to provide an improved construction and design of therapeutic apparatus of the kind referred to which is portable, self-contained and universally adjustable so that it can be readily adapted for the treatment of a patient according to the condition and requirements of the case.

According to this invention electro magnetic therapeutic apparatus of the kind referred to comprises an adjustable and portable surgical chair, couch or like support, upon which suitable electro magnets are adjustably mounted so that such magnets can be arranged in any desired position with respect to the patient supported in the chair or couch in order to direct when suitably energised one or more magnetic fields on or through the patient for the purposes of general or local treatments according to the requirements of the case, while for the purposes of local applications, as for example beauty treatment, additional electro magnets of various forms and sizes are provided, which additional magnets are adapted to be detachably and interchangeably mounted upon hand pieces or like supports so that the same can be used during the progress of the main therapeutic treatment if desired.

The electro magnets adjustably mounted upon the chair or like support and likewise those mounted upon the hand pieces are connected through flexible leads to a portable switchboard panel furnished in known manner with switches and a rheostat, adjustable resistances or the like through which the strength of the current and consequently that of

the magnetic fields developed by the magnets may be readily and safely controlled by the operator.

In a convenient construction the surgical chair or like support is furnished with adjustable arm rests, an adjustable back and adjustable foot and leg rests which can be arranged so as to support a patient lying at full length or sitting or reclining according to the needs and requirements of the case, while removable electro magnets or generators are adjustably mounted in the back and seat frames of the chair or like support, and other removable electro magnets or generators are adjustably mounted upon the arm rests and at each side of the back of the chair.

The electro magnets mounted in the seat and back frames can be adjusted to and fro, and those mounted upon the arm rests and back of the chair are furnished with universal adjustments so that they can be arranged in any required relationship with each other, or with the electro magnets adjustably mounted in the seat and back frames so as to operate with the same in order to set up and direct magnetic fields of any desired intensity through the whole or any part or parts of the patient according to the requirements of the case, while the strength and dimensions of the several magnets may be designed so as to prevent detrimental effects arising through unequal distribution of the magnetic fields.

The hand pieces or carriers for carrying pairs of smaller electro magnets may be in the form of pairs of adjustable forceps furnished at one end with socket pieces in which the small electro magnets of various shapes and sizes may be detachably and interchangeably mounted, and at the other end with finger grips and with a flex or coupling by which the same can be connected with the switchboard, while such hand pieces are furnished with insulated terminals and wiring to ensure good electrical connection for the electro magnets mounted therein, while preventing short circuits or risk of injury to the operator or

Such small interchangeable electro magnets may be furnished with insulating rollers of rubber or other material which are adapted to prevent contact of such magnets with the skin of the patient, and also may be utilised for local massage and like purposes.

The switch board conveniently comprises a panel of slate or other suitable insulating material on which a main switch and distributing switches are mounted together with pilot lamps and a rheostat, adjustable resistances or the like for controlling the strength and distribution of electric energy from the mains to the several electro magnets of the apparatus.

Such switchboard panel is preferably mounted in a frame or like support furnished with castors or rollers so that the same can be readily transported together with the electro magnetic chair and thus provide a complete self-contained electro

magnetic therapeutic apparatus which can be readily moved from place to place according to requirements, as for example in various positions in wards or rooms of a hospital, nursing home or the like.

For the purpose of testing the strength and action of the magnetic fields set up by the magnets, portable detector devices of known type are provided, such as a case containing a magnet or coil mounted in a case and adapted for connection to an incandescent lamp, a microphone or a pair of hand grips so that either of such appliances can be connected to and energised through the portable testing magnet when such magnet is introduced into one or other of the magnetic fields generated by the apparatus.

Dated this 13th day of December, 1933.  
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#### COMPLETE SPECIFICATION

### Improvements in and relating to Electromagnetic Therapeutic Apparatus

I, SUZANNE SARA STOKVIS SIMPSON, of 5, Randolph Road, Maida Vale, London, W. 9, a British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to electro magnetic therapeutic apparatus of the kind comprising pairs of electro magnets or generators of magnetic waves arranged in a chair so that magnetic fields can be set up and directed through the body of the patient for the purpose of effecting magneto electric treatment, and has for its object to provide an improved construction and design of therapeutic chair of the kind referred to which is universally adjustable so that it can be readily adapted for the treatment of a patient according to the condition and requirements of the case.

According to this invention electro magnetic therapeutic apparatus of the kind referred to comprises an adjustable and portable surgical chair, couch or like support, in and upon which a plurality of suitable electro magnets are mounted so as to be universally adjustable with respect to the patient supported in the chair or couch in order to direct when suitably energised one or more magnetic fields on or through the patient for the purposes of general or local treatments according to the requirements of the case, while for the purposes of local applica-

tions, as for example beauty treatment, additional electro magnets of various forms and sizes may be provided, which additional magnets are adapted to be detachably and interchangeably mounted upon hand pieces or like supports so that the same can be used during the progress of the main therapeutic treatment if desired.

The electro magnets adjustably mounted upon the chair or like support, and likewise those mounted upon the hand pieces are connected through flexible leads to a portable switchboard panel furnished in known manner with switches and a rheostat, adjustable resistance or the like through which the strength of the current and consequently that of the magnetic fields developed by the magnets may be readily and safely controlled by the operator.

The invention is further described with reference to the accompanying drawings wherein similar references indicate like parts.

Fig. 1 is a side view and Fig. 2 a front view illustrating one form of the improved apparatus comprising an extensible chair furnished with adjustable electro magnets in accordance with the present invention.

Fig. 3 is a plan view, and Fig. 4 a longitudinal section on the line IV—IV Fig. 3 showing the chair extended. Figs. 5 and 6 are detail views drawn to an enlarged scale showing clamps for ad-

justably securing the electro magnets upon their supports. Fig. 7 is a front view of a portable switchboard for use with the improved apparatus. Figs. 8, 8a and 9 are detail views respectively illustrating a pair of adjustable forceps and an adjustable head clip for carrying interchangeable electro magnets for local applications, while Figs. 10 and 11 respectively illustrate a magnetic brush and a magnetic comb adapted for use with the apparatus.

As shown in the drawings the improved apparatus comprises a portable extensible chair in and upon which are adjustably mounted a plurality of suitable electro magnets of known kind so as to form a portable self-contained unit which can be easily adjusted, moved about and transported as required, the several electro magnets being adapted for connection in known manner to a suitable source of electric current for energising the same.

The chair seat 1 is furnished with a sliding extension 2 provided with legs 6a and a hinged back 3 furnished with hinged legs 6b and laterally disposed supporting racks 4, while electro magnets 9 and 10 are adjustably mounted in the seat and back frames respectively, and other electro magnets 11 and 12 are adjustably mounted upon vertical supports 13 and 14 arranged upon the chair frame, so that the same can be adjusted and secured as required.

The supporting racks 4 for the hinged chair back are pivotally mounted upon the latter, and adapted to be engaged with and released from pins 5a secured on side posts 5 comprised in the chair frame, while the hinged legs 6b serve to support the chair back when the latter is lowered into the horizontal position as shown in Fig. 4.

The extension 2 of the seat works over and is supported by lateral rails 1b comprised in the seat frame the front of which is recessed as indicated at 1c to receive the legs 6a of the extension so that the latter can be closed flush with the front of the seat, as indicated at Fig. 2, while the outward movement of the extension is limited by a cross rail 1e which engages the front of the seat frame when the extension is fully drawn out.

The chair may be upholstered in any preferred manner and be provided with removable cushions for the seat and its extension and the adjustable back.

The vertical supports 13 and 14 are made from brass or other suitable tubing, and are carried by a pair of side rails 15 of similar material, which rails are secured to the chair frame.

The side rails 15 are of sufficient length

to extend beyond the back and front of the chair seat and are formed with returned ends 15a provided with flanges 15b by means of which such rails are screwed or otherwise secured to the chair legs 6 so that the rails project laterally from opposite sides of the chair as indicated at Figs. 2 and 3.

The supports 13 are slidably mounted one on each of the side rails by sleeves 13a each furnished with an internal feather 13b which slidably engages a longitudinal slot or keyway 15c in the corresponding side rail 15, while the supports 14 are fixed one to each of the rear ends of the side rails as indicated.

As shown each of the electro magnets 11 is pivotally mounted in a frame 16 secured to the end of an arm 17, while the magnets 12 are similarly mounted in frames 16 each of which is provided with a perforated lug 16a that is pivotally mounted in the end 17b of its corresponding arm 17, see Fig. 1, by means of a stud and wing nut 16b; so that the pivoted frame can be locked to its arm 17 when adjusted.

Each arm 17 is slidably mounted in a cross sleeve 18 that is carried by a vertical sleeve 19 and furnished with a set screw 18b see Fig. 6, for securing the slidable arm therein. The sleeve 19 is slidably mounted upon the corresponding vertical support 13 or 14 and is provided with a known locking device comprising a lever 20 pivoted at 20a to a lug 19a of the sleeve, one arm of such lever being furnished with a set screw 20b while its other arm comprises a block 20c that works through an opening 19b in the sleeve 19 so that the latter can be frictionally secured to and released from its support by appropriate adjustments of the screw 20b.

The electro magnet 10 mounted in the hinged chair back 3 is adapted to slide between vertical guide rails 10a comprised in the frame of the chair back, see Fig. 2, and is secured in its adjusted position by means of one or more pins 10b adapted to engage with one or other of a series of perforations 10c in the guide rails.

The electro magnet 9 is slidably mounted between horizontal rails 2a comprised in the frame of the slidable extension 2 of the chair seat as indicated at Fig. 4. As shown, the rails 2a are furnished with flanges 2b which support the magnet 9 while such magnet is provided with side links 9a that are pivotally connected by pins 9b to the vertical sides of the rails 2a so that the magnet 9 can be lifted out and placed vertically upon the front rail of the seat extension 2 when the latter is withdrawn from the seat,

as indicated at Fig. 4, the magnet being retained in position by the side links 9a.

Each of the electro magnets is furnished as usual with a plug socket 21 so that it can be connected by means of flex wires or other suitable leads furnished with plugs to a suitable source of alternating electric current through a suitable switchboard.

- 10 The switchboard illustrated at Fig. 7 comprises a panel 21 of slate or other suitable insulating material which is mounted in a portable frame comprising standards 22 furnished with feet or  
15 pedestals 23 provided with casters 24 so that the same can be easily moved about as required.

- Such switchboard is furnished with a mains connection 25, fuse 25a and a main switch 26, ampere and volt meters 27 and 28, distributing sockets 29, 30 and 31, each furnished with pilot lamps 32, and a rheostat 33 for controlling the strength of electric current from the mains, the  
25 several elements being suitably interconnected and wired up in known manner.

- The connecting leads of the several magnets are furnished with plugs and switches adapted for connection to corresponding sockets; thus, the leads for the seat magnet 9 may be connected to the switchboard socket 29, those for the chair back magnet 10 to the same or  
30 another socket on the switchboard, the leads for the magnets 12 to the socket 30, and those for the magnets 11 to the socket 31, while an extra socket as 31a may be provided for additional magnets adapted for local applications, such for  
35 instance as facial treatments, examples of which additional magnets are illustrated at Figs. 8-11.

- Fig. 8 illustrates a hand piece in the form of a pair of adjustable forceps 33  
45 having tubular limbs that are furnished at one end with sockets 34 adapted to receive forked plugs 35, in each of which an electro magnetic roller 36 is rotatably mounted.

- 50 The rollers 36 are mounted fast on their spindles 36a, the ends of which latter journal in the forked ends of the plugs 35.

- The windings of the magnets in the rollers 36 are connected through spring brushes 37 and 37a, insulated contacts 36b on the roller spindles, and leads 37b to insulated contact plates 38 on the plugs 35, see Fig. 8a, so that when the latter  
55 are assembled in the sockets 34 they make electrical connection with contacts 34a in such sockets, the contacts 34a being in turn connected by insulated leads 39 to plug sockets 40 in the handle ends of the forceps so that these latter can be con-  
60 nected to the switchboard panel by the

flexible leads furnished with suitable plugs.

Fig. 9 illustrates an adjustable head clip 43 furnished with sockets 44 adapted to receive plugs such as 35 carrying small electro magnets of any desired form for local applications to the head and face, the sockets 44 of the head clip being furnished with leads by which the magnets therein can be connected to a source of  
70 current.

Figs. 10 and 11 are side views respectively illustrating a magnetic brush and a magnetic comb. In each case, an electro magnet is suitably arranged in the back 45 of the brush or comb which is provided with a plug socket 46 to which the windings of the magnet are suitably connected, so that the same can be connected through counterpart plugs furnished with leads to the switchboard or other suitable source of electric energy.

Electro magnets of various shapes and sizes may be interchangeably mounted in the forceps and head clip so that local magnetic treatment can be carried on either independently of or simultaneously with the general therapeutic treatment.

A portable electro magnet or coil 47 (see Fig. 2) of known kind is provided for testing the electro magnets arranged upon the chair in combination with detector devices such as an incandescent lamp, microphone or hand electrodes adapted to be connected to the portable test magnet or coil, the test magnet or coil 47 being placed upon one or other of the electro magnets on the chair, such as one of the magnets 11, as indicated at Fig. 2, which magnet is connected to a source of electric energy.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1) In electro magnetic therapeutic apparatus of the kind referred to the combination with an adjustable and portable surgical chair, couch or like support of a plurality of electro magnets adjustably mounted in and upon such chair or like support so as to form a portable self-contained unit on which the magnets are mounted so as to be universally adjustable with respect to a patient supported in or on the chair or couch substantially as hereinbefore described and illustrated.

2) Electro magnetic therapeutic apparatus according to Claim 1 comprising a portable extensible chair, in the seat and back of which electro magnets are adjustably mounted, together with pairs

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of adjustable electro magnets mounted upon supports carried by lateral rails mounted upon the chair frame substantially as hereinbefore described and illustrated.

3) The combination with electro magnetic therapeutic apparatus according to Claim 1 or 2 of a portable switch-board comprising a panel mounted in a portable frame and made and arranged substantially as hereinbefore described with reference to Fig. 7 of the accompanying drawings.

4) The combination with electro magnetic therapeutic apparatus according to Claims 1 or 3 of additional electro magnets adapted to be detachably and interchangeably mounted upon hand pieces, head clips and the like substantially as

hereinbefore described and illustrated at 20 Figs. 8, 8a and 9 of the accompanying drawings.

5) The combination with electro magnetic therapeutic apparatus according to Claims 1 to 4 of additional electro magnets arranged in the form of a brush or comb substantially as hereinbefore described and illustrated at Figs. 10 and 11 of the accompanying drawings.

6) The improved electro magnetic therapeutic apparatus made, arranged and combined and adapted for use substantially as hereinbefore specified.

Dated this 9th day of January, 1935.

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FIG. 1.

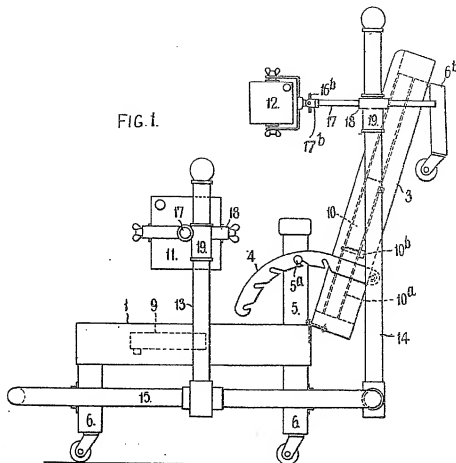


FIG. 5.

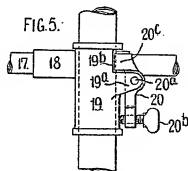


FIG. 10.

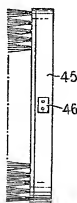


FIG. 11.

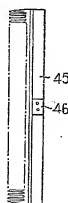
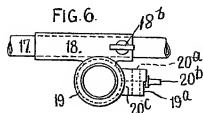


FIG. 6.



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FIG. 7.

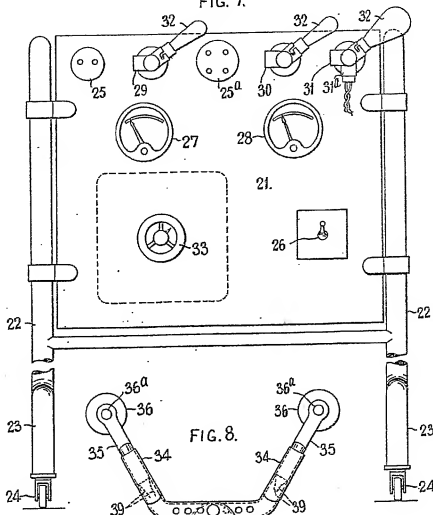
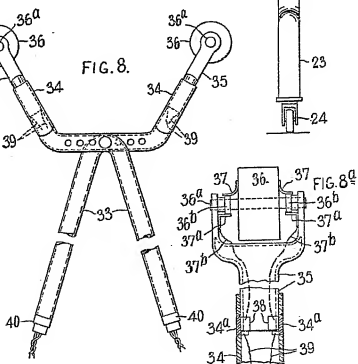


FIG. 8.



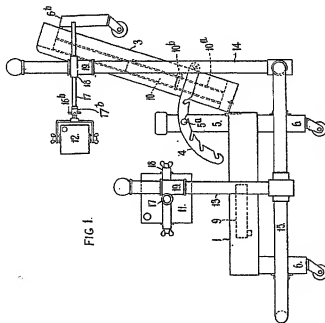


FIG. 1.

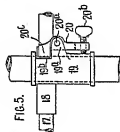


FIG. 5.

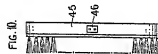


FIG. 10.



FIG. 11.

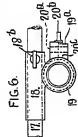


FIG. 6.

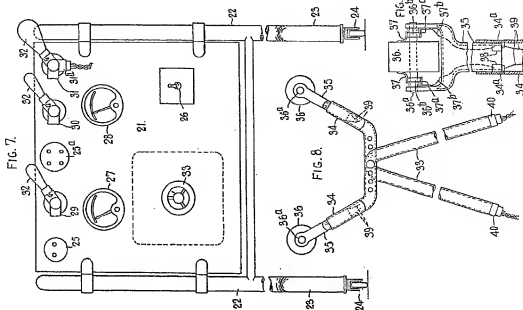


FIG. 7.

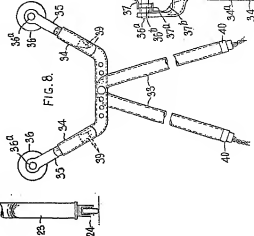


FIG. 8.



FIG. 2.

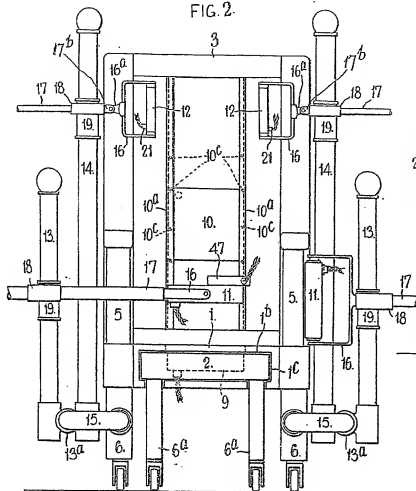
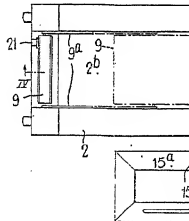
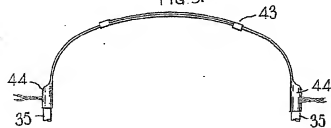
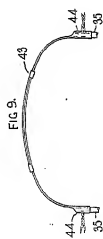
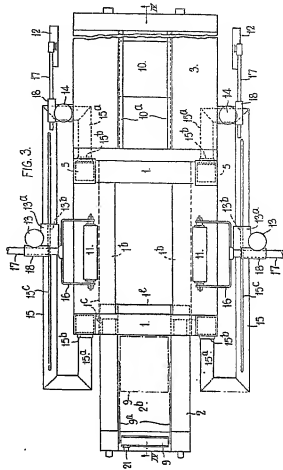
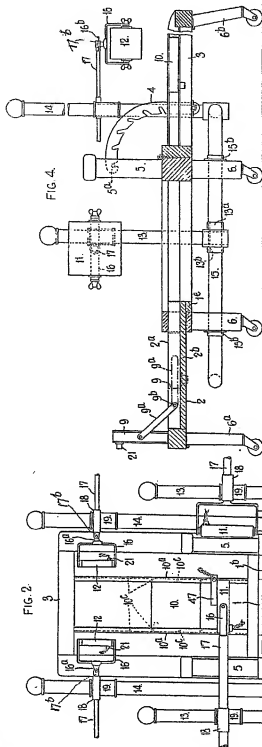


FIG. 9.



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[This drawing is a reproduction of the original on a reduced scale]